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(71) Applicant (for all designated States except US): **DSM IP ASSETS B.V.** [NL/NL]; Het Overloon 1, NL-6411 TE HEERLEN (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CROWLEY, John** [IE/IE]; Wyeth Medica Ireland, Grange Castle Business Park, Clondalkin, 22 DUBLIN (IE). **WÜBBEN, Maike** [NL/NL]; Steenhouwerskade 17, NL-GRONINGEN 9718 DB (NL). **COCO MARTIN, Jose Manuel** [NL/NL]; Jachtlaan 20, NL-9301 KP RODEN (NL).

(74) Agent: **HERMANS, Edith Elisabeth Hermine**; DSM Intellectual Property, Geleen Office, P.O. Box 9, NL-6160 MA GELEEN (NL).

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(54) Title: **PROCESS FOR CELL CULTURING BY CONTINUOUS PERFUSION AND ALTERNATING TANGENTIAL FLOW**

(57) Abstract: The invention relates to a process for the culturing of cells by continuous perfusion culturing of a cell culture comprising cell culture medium and cells, wherein cell culture medium is added to the cell culture, the cell culture is circulated over a filter module comprising hollow fibers resulting in an outflow of liquid having a lower cell density than the cell culture and the flow within the filter module is an alternating tangential flow. Preferably, culture medium is added at a particular perfusion rate and/or biomass is removed from the culture at least once. The method is especially suitable for the culturing of aggregating cells. The invention also relates to such a process wherein a biological substance, preferably an antibody, is produced by the cells, which biological substance may be further purified in downstream processing.

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